Development and Performance of Palm Oil Industry in Malaysia and Indonesia

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Abstract

Palm oil is a major vegetable oils traded in market place, whereas Malaysia and Indonesia are the main producer and exporter of world palm oil. Palm oil is a strategic crop for Malaysia and Indonesia economy due to export earning and employment opportunity. Historically, palm oil is originated from West Africa and commonly known today as a vegetable oil. It is currently available in more than 100 countries and is used in such food applications as margarine, shortening, potato chips, cake mixes and non-food applications like soap as well as biodiesel as new demand of palm oil. The versatile and benefit of palm oil boosted the consumption of palm oil in the market place. The objective of this paper is to analyze the development of palm oil industry in Malaysia and Indonesia in terms of production, area cultivation and yield as well as export. This paper also discussed collaboration between Malaysia and Indonesia to tackle palm oil issues in global market.

Keywords: palm oil industry.

1.0 Introduction

Palm oil is the major vegetable oils traded in market place whereas Malaysia and Indonesia are the main producer and exporter of world palm oil. Palm oil is a strategic crop for both countries due to export earning and employment opportunity. In 2008, palm oil export earning of Malaysia was RM47 million and employed about 570,000 people in this sector. While, in Indonesia the sector directly and indirectly employed between four and six million of the economically active rural population and support up to 36 million population. The sector has proven a powerful tool for poverty alleviation in Indonesia (IFC, 2010).

Furthermore, over 100 countries of the world were using palm oil to produce food product such as margarine, shortening, potato chips, cake mixes, confectionery fat whereas non food application such as soap and oleochemicals as well as biodiesel were also produce to meet world's and domestic demand. As such about 80 percent of oil palm product is used for food applications, while the other 20 percent is used in non-food applications. Because of the higher market value of these non-food derived palm products, the non-food category is expected to grow in importance (APOC, 2004). Beside that the price advantage which is cheaper than other oils and nutritional benefit of palm

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oil boosted the consumption of palm oil in the market place. Recently, palm oil is leading in world vegetable oil consumption (Review of the Malaysian Oil Palm Industry 2008).

2.0 Development and Performance of Palm Oil Industry in Malaysia and Indonesia

2.1 Historical Background

Oil palm was originated from West Africa,whilst development of oil palm as a plantation crop started in the South East Asia. Oil palm was first introduced to Indonesia in 1848, when seedlings were planted at the Bogor Botanical Gardens. While the first commercial oil palm plantation was established in Sumatra in 1911 by M Adrian Hallet. In 1938, Indonesia became the world's largest exporter of palm oil due to injection of Dutch capital expanded oil palm cultivation (Potter and Lee, 1998). In addition, the oil palm tree was first introduced to Malaya by British as an ornamental plant in 1875. In 1917 the plant was first commercial planting in Tennamaran Estate, Selangor by Henri Fauconnier (Sime Darby, 2009). Since 1966, Malaysia overtook Nigeria as the worlds leading exporter and producer of world palm oil (MPOB, 2001). However, by 2006, Indonesia became a main producer of world palm oil due to dramatically increased area under plantation (Malaysia, AFP April 14, 2008).

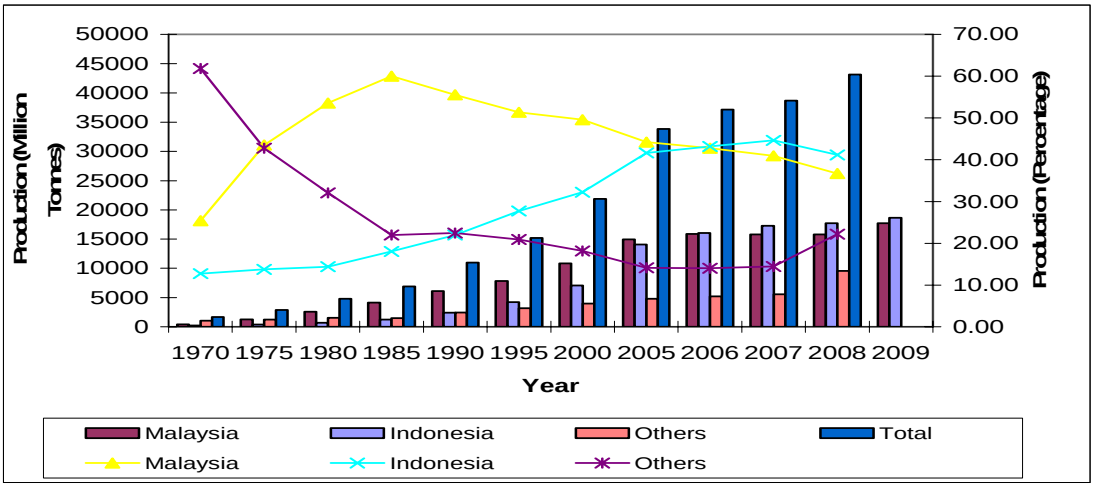
2.2 Production

Since 2005 palm oil is the most significant sources of oils and fats in the world compared to soyabean oil, rapeseed oil and sunflower oil which palm oil production surpassed soyabean oil. In 1990, palm oil production accounted 10.9 million tonnes (13.6 percent) of the world oils and fats in quantity base, following soyabean oil with 16.9 million tonnes (19.92). In 2008, palm oil production increased to 43.1 million tonnes (26.87) compared to soyabean oil which accounted 37.1 million tonnes (23.2 percent) (Malaysian Palm Oil Board, 2008).

Malaysia has been leading producer of palm oil since early 1970s and produces more than half of total production. Indonesia emerged as second producer in early 1980s. However, since 2006 Indonesian overtook Malaysia as a leader of world palm oil producer due to land area expansion in Indonesia especially in South Sulawesi and West Kalimantan. In that year, Malaysia produced about 15.8 million tonnes (42.76 percent), while Indonesia produced 16.1 million tonnes (43.21 percent) of world palm oil production. In addition, in year 2009 world palm oil production continuously increased with dominated by Indonesian production. Indonesian produced about 18.6 million tonnes

compared to Malaysia which accounted 17.7 million tonnes. This scenario was presented in Figure 1.

Figure 1: World Production of Palm Oil (Million Tonnes): 1970 – 2009



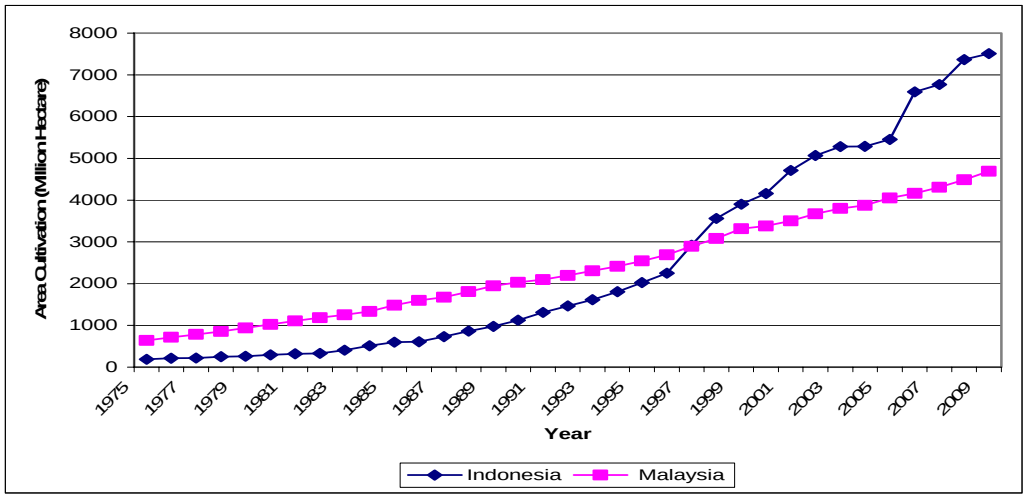
Source: Malaysian Palm Oil Board, Various Editions
Directorate General of Estate

2.3 Area Cultivation and Yield

Geographically, Indonesia land area is 1,919,317 square kilometer (km^2) compared to Malaysia which 329,847 square kilometer (km^2). Thus, Indonesia has big potential to expand land cultivation for palm oil which could stimulate higher income compared to other crops. The main area palm oil cultivation of Indonesia is concentrated in North Sumatra, Riau, West Kalimantan, South Sumatra, Jambi and Aceh. In recent year, there has been growing expansion of palm oil plantation on the Island of Sumatra, Borneo, Sulawesi and West Papua (USDA, 2007). While, in Malaysia the main area is concentrated in Sabah, Sarawak, Johor, Pahang and Perak. According to Figure 2, in 1975 land area for palm oil cultivation in Indonesia was only 189 hectare, while Malaysia 641.8 hectare. Area cultivation in both countries has increased gradually owing to economic and social contribution to these countries. Palm oil area cultivation of Indonesia surpassed Malaysia since 1997 and the gap getting bigger. In 2009, palm oil occupied about 7.5 million hectare and 4.6 million hectare land area in Indonesia and Malaysia, respectively.

Eventhough, production and area cultivation of palm oil in Indonesia was bigger than Malaysia, meanwhile yield per hectare and quality palm oil of Malaysia was higher than Indonesia (Mohd Basri, Bernama: 12.5.2009). Based on Figure 3, average yield of

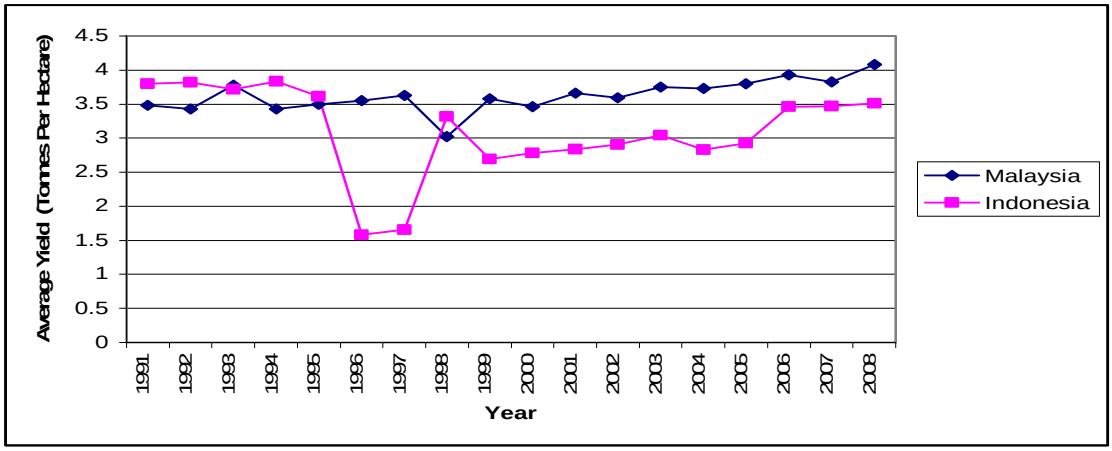
Figure 2: Palm Oil Cultivation Area: Malaysia and Indonesia (Million Hectare): 1975 – 2009



Source: Malaysian Palm Oil Board, Various Editions
Directorate General of Estate

Malaysia was higher than Indonesia and the differences expanded for the period 1991 – 2008. In 1991 palm oil average yield in Malaysia and Indonesia was 3.8 tonnes and 3.48 per hectare, respectively. In 2008, the average yield in Malaysia increased to 4.08 ton per hectare, while Indonesia was 3.51. Yield's performance was reflected by biological stress which affected fresh fruit bunches (FFB) yields and climate such as good rainfall distribution (Review of the Malaysian Oil Palm Industry, 2008).

Figure 3: Palm Oil Average Yield: Malaysia and Indonesia (Tonnes/Hectare): 1975 – 2009



Source: Malaysian Palm Oil Board, Various Editions
Ministry of Agriculture Republic of Indonesia

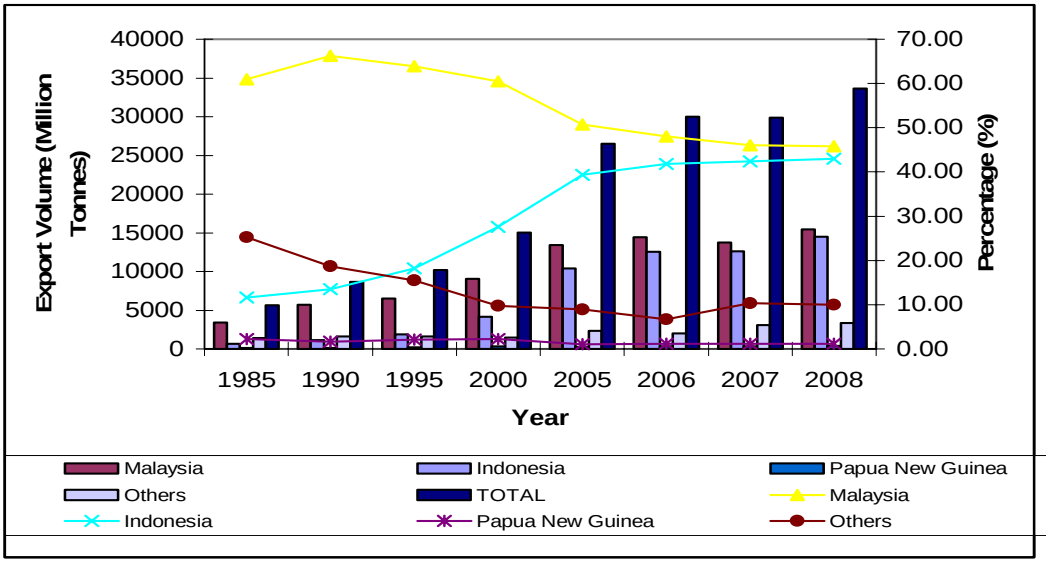
2.4 Export

The development of Malaysian and Indonesian palm oil industry is increasingly export driven, as palm oil export of both countries increased by 631 percent in the past 23 year (1985– 2008). Malaysia export approximately 80 percent of palm oil in process palm oil (PPO) while contrary to Indonesia which dominant in crude palm oil (CPO). In addition Malaysia exports almost 90 percent of palm oil production due to limited domestic consumption which reflected by small population of 27 million people. Meanwhile, Indonesia export almost 70 percent of palm oil production because of higher domestic demand with population accounted 230 million people in 2008.

Figure 4 provides an overview of the world palm oil export. During the period world export of palm oil increased from 5.6 million tonnes to 33.6 million tonnes. The export volume of Malaysia and Indonesia increased from 3.4 million tonnes (60.98 percent) and 0.652 million tonnes (11.58 percent) to 15.4 million tonnes (45.84 percent) and 14.4 million tonnes (43.04 percent). Malaysia still remained as a world leader of palm oil exporter, but the export share of world export decreased gradually. Contrary, Indonesia export share has increased continuously and get closer to Malaysia.

Meanwhile, the main destinations of world palm oil export are Republic of China (PRC), European Union (EU), India, Pakistan and United States (USA). PRC is main

Figure 4: World Major Exporter of Palm Oil (Million Tonnes and Percentage): 1985 – 2008



Source: Malaysian Palm Oil Board, Various Editions

exporter of Malaysia. While, India is main exporter of Indonesia since 2000 which was a main exporter of Malaysia (Latha, 2006). According to Table 1, PRC import of palm oil has grown from 1.5 million tonnes in 1995 to 5.7 million tonnes by 2008. PRC is the biggest market for palm oil which the volume of import has increased significantly due mainly to economic development and population increase (Mohd Arif and Mohammad Fairuz, 2009).

Most of palm oil imported was from Malaysia and Indonesia which influenced by the implementation of biodiesel program and the shipment period only take 5 to 11 days compared to soyabean from South Africa that take 40 to 45 days with an expensive cost of transport (BusinessWeek, May 21, 2008). In 2008 PRC imported about 3.7 million tonnes (66.3 percent) and 1.2 million tonnes (22.6 percent) palm oil from Malaysia and Indonesia, respectively. However, the Malaysian palm oil imported decreased by 1.2 percent compared to the 2007. This due to 22.2 percent increased in imports of soyabean for local crushing and 11.7 percent increased in Indonesian palm oil import (Review of the Malaysian Oil Palm Industry, 2008).

Meanwhile, in term of palm oil product, palm olein was the most favored in PRC market. In 2009 almost 70 percent (4.1million tonnes) palm olein out of 5.8 million tonnes palm oil, was imported by PRC compared to others. Palm olein has enjoyed

Table 1: Palm Oil Export of Malaysia and Indonesia Based on Country of Destination

Destination	Weight	1995	2000	2004	2005	2006	2007	2008
Republic of China (PRC)	Total (Million Tonnes)	1595	1764	3851	4320	5462	5499	5720
	Malaysia (Million Tonnes)	1046	1022	2806	2960	3578	3840	3794
	Indonesia (Million Tonnes)	na	621	1070.4	1466.9	1756.6	1441.1	1295.8
European Union (EU)	Total (Million Tonnes)	1738	2419	4018	4489	4674	4623	4867
	Malaysia (Million Tonnes)	664,877	1037	1966	2271	2586	2063	2052
	Indonesia (Million Tonnes)	0	904	1614.1	1900	2019	2006	2114.6
India	Total (Million Tonnes)	863	3650	3453	3315	3198	3688	5308
	Malaysia (Million Tonnes)	742	2035	942	635	562	511	971
	Indonesia (Million Tonnes)	112.8	1639.1	2793.1	2672.4	2912.2	2380	3280
Pakistan	Total (Million Tonnes)	1122	1107	1432	1646	1736	1711	1788
	Malaysia (Million Tonnes)	1,059	1,102	954	957	968	1,070	1257
	Indonesia (Million Tonnes)	41	15	500	706	646.23	784	na
United States (USA)	Total (Million Tonnes)	102	165	271	420	629	788	1068
	Malaysia (Million Tonnes)	81	182	343	558	685	795	987
	Indonesia (Million Tonnes)	na	na	41.9	20.2	64.8	65.6	81.5

Source: Malaysian Palm Oil Board, Various Editions
Ministry of Plantation Industries and Commodities, Various Editions
Indonesian Palm Oil Statistics 2008, Indonesian Palm Oil Board (IPOB)

constant growth since Trade Rate Quota (TRQ) system abolished in 2006. PRC is relies on palm olein as the main raw material for related production sectors. One of the main applications of palm oil in this country is industrial frying. This oil is resistance to oxidation which allows users to fry many batches of food without it going rancid (BusinessWeek, May 20, 2008).

In addition, the demand for palm oil in the EU has been increasing even though the Non Government Organization (NGOs) in this country continuously issued the adverse campaign and environmental issues of palm oil. In 1995, EU imported only 1.7 million tonnes of palm oil. However, in 2008 imports of palm oil had increased by more than 100 percent to 4.8 million tonnes. This shows that palm oil is well accepted, mainly due to its lower price compared to other competitive oils (Mohd Arif and Mohammad Fairuz, 2009). The EU market faced stiff competition between major exporters of palm oil. Although Malaysia is the major exporter of palm oil to EU, Indonesia was making a significant presence there. In 2000 Malaysia had contributed about 1.04 million tonnes (42.9 percent) market share while Indonesia had only 0.9 million tonnes (37.3 percent). In 2008, the proportion of the market share has changed whereas Malaysia having 42.2 percent (2.05 million tonnes) of the market share compared to Indonesia's market share of 43.4 (2.1 million tonnes) (Refer Table 1). This due to EU imports more crude palm oil (CPO) from Indonesia which dominance in export of CPO in the world compared to Malaysia.

Furthermore, India is the top four of largest market for vegetable oils in the world and became the second important destination of palm oil market after PRC. Palm oil supported many industries in India, such as refining, vanaspati and other industrial sector. Palm oil from Malaysia and Indonesia is benefited from freight cost and shipping time advantages compared with leading suppliers of soyabean oil, as well as from the ability do deliver oil in smaller and more frequent shipment (Mohd Arif and Mohammad Fairuz, 2009). In 1995, almost 86 percent (0.7 million tonnes) of palm oil imported by India was from Malaysia. However, since 2003 Malaysia began to lose its place to Indonesia as the major exporter of palm oil in India. During that year, Malaysia's market share jumped to 40.2 percent (1.6 million tonnes) compared to Indonesia's which had risen to 64.2 percent (2.6 million tonnes). In 2008, the Malaysian market share dwindled further to 18.3 percent (0.97 million tonnes) while the Indonesian market strengthened to 61.8 percent (3.2 million tonnes) (Refer Table 1).

India imports more palm oil from Indonesia due to price differentials. Indians prefer to import crude palm oil (CPO) which can be readily sourced from Indonesia to support the many industries. Indonesia gained a larger market share because it could export CPO without the high export duties faced in Malaysia (Mohd Arif and Mohammad Fairuz, 2009).

Meanwhile, Pakistan is the fourth importer of palm oil has been aggressively buying from producers in Malaysia and Indonesia. Palm oil imported in Pakistan has been increased from 1.1 million tonnes in 1995 to 1.7 million tonnes in 2008. Most of palm oil imported by Pakistan was from Malaysia. In 1995 Pakistan imported about 1.05 million tonnes (94.4 percent) and 0.04 million tonnes (3.7 percent) from Malaysia and Indonesia, respectively. However, Indonesia is fast eroding the dominance of Malaysia in this market which market share of Malaysia jumped to 62 percent (1.07 million tonnes) by 2007. Meanwhile, Indonesia's market share increased to 45.8 percent (0.78 million tonnes) (Refer Table 1).

Indonesian price advantage has helped to boost palm oil export demand in Pakistan. Companies who have refineries in Malaysia were also exporting out Indonesia because the oil there was US$2.5 - US$5 cheaper per tonne. Indonesia sells mainly crude palm oil that tally demand from refineries in Pakistan (Mohd Arif and Mohammad Fairuz, 2009). While, Malaysia influence export demand of palm oil in Pakistan by import duty reduction by 10 percent Margin of Preference under the Malaysia-Pakistan Free Trade Aggrement (FTA) which effective January 2008 (Review of the Malaysian Oil Palm Industry, 2008)

United States (USA) palm oil market is relatively small market compared to Republic of China (PRC), India and European Union (EU). However, the export volume of palm oil in this market has been increased continuously due to health concern and trans-fatty acid labelling which was enforced since 2006. In USA, palm oil is used primarily as an ingredient in commercially processed food. Chocolate products such as candy bars and cake icing may contain palm oil as a substitute for cocoa butter. Ice cream, magerine, peanut butter, coffee whitener, canned cream soups and other snack foods and microwaveable convenience foods may all contain palm oil. (Mohd Arif and Mohammad Fairuz, 2009). In 1995, USA imported only 0.2 million tonnes of palm oil with 0.08 million tonnes (79.4 percent) of it, originating from Malaysia. In addition by 2008 total palm oil imports increased to 1.07 million tonnes. Out of the figure about 0.98

million tonnes (92.4 percent) was from Malaysia and 0.08 million tonnes (7.6 percent) from Indonesia (Refer Table 1).

In USA market, Malaysian palm oil market share has been increased and looks likely to continue. Deforestation and environmental issues have become the biggest obstacles impeding Indonesian palm oil from penetrating the USA market (Mohd Arif and Mohammad Fairuz, 2009). Thus to strengthen market share in this country, Malaysian continuously put strong support and high commitment on quality assurance and implementation of Certification of ISO series 14000 as well as Roundtable on Sustainable (RSPO) Principles and Criteria.

3.0 Malaysia and Indonesia Collaboration

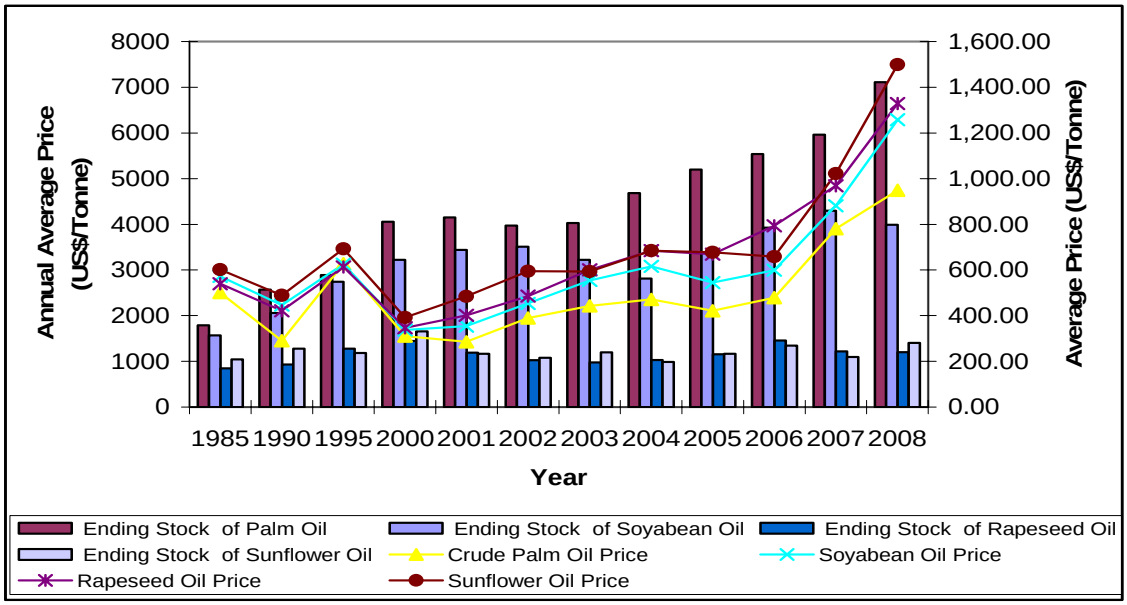
There are a lot of issues and challenges facing by palm oil producers domestically such as increasing in cost of production, lower productivity, labour scarcity, low technology intensity and poor infrastructures. However, the challenges issues at global market which involve others parties are more complex and takes time to make decision and to solve. For example, price stabilization and stock management and sustainability as well as environmental issues. Thus collaboration of producers is needed to combat and solve the issues and problems that had been raised in global market place.

3.1 Price Stabilization and Stock Management

The change of commodity price is a normal phenomenon in market place according demand and supply determination. However, the huge fluctuation could have big impact on production and demand for the commodity. Price of palm oil normally is discounted from others oils and fats especially soyabean oil. However during the crude oil price crisis in 2008, the vegetable oils price has been increased accordingly. The average price of crude oil and main vegetable oils dramatically increased as well as stock. In 2007, palm oil price rose to US$780 per tonne which lower compared to soyabean oil, US$1,258 per tonne. During this year palm oil stock was 5.9 million tonnes which higher than soyabean that accounted 4.3 million tonnes. Unfortunately, in 2008 due to crude palm oil crisis palm oil price continuously increased to US$949 per tonne. The scenario showed that the price and stock increased mutually (Refer Figure 6). Recently (April 2010), palm oil price fluctuate at US$780 (RM2500).

Thus, Malaysia and Indonesia with 85 percent of global palm oil production control must cooperate to stabilize prices of palm oil in the international market, which

Figure 6: Stock and Price of Major Vegetable Oils (US$/Tonne)



Source: Malaysian Palm Oil Board, Various Editions

was presently decided in Rotterdam (Ahmad Fuad, Bernama: March 6, 2010). This price stabilization could be done via palm oil stocks management, reduce supply by accelerating replanting of older oil palm trees, implementation of biofuels and address non-tariff barriers for palm oil based biodiesel. Malaysia has implemented the blending of five percent palm based methyl ester with fossil diesel. While, Indonesia implemented a minimum of one percent blending programme in the public transportation sector and a minimum of 2.5 percent blending in the industry and commercial sector. These minimum percentages will be increased to 2.5 percent in the public transportation sector and five percent in the industrial and commercial sectors (Bernama, Feb 25, 2009).

3.2 Sustainability and Environmental Issues

Since 1980's palm oil industry has been confronted by adverse and critical issues. In late 1980's the health concern was arise by American Soyabean Association (ASA) which palm oil is unhealthy food. The issue was encounter by prove that palm oil is good for health especially for cardiovascular compare to other vegetable oil. Recently, the palm oil industry facing a challenging issues relating to environment, in particular deforestation, loss of biodiversity and threat to wildlife especially *Orang Utan* . Concern about carbon emission from development of peatland have been added to the list, projecting a wrong image of the industry to consumer worldwide (Peter Chin, 2008). Actually, by using a life

cycle analysis approach the green house gases (GHG) emission of palm oil have been estimated at 835 kilogram carbon equivalent. Whereas, soyabean and rapeseed emission were estimated 1,387 kilogram and 1,562 kilogram, respectively (Yusof, 2008).

Environmental issue is a global issue that raised by European Union (EU) and United Stated (USA) as a new trade barrier for palm oil particularly in Europe and USA (Yusof, 2007). In November 2005, the Roundtable on Sustainable Palm Oil (RSPO) adopted Principles and Criteria for Sustainable Palm oil Production to provide the foundation for the sustainable production of palm oil. These take into consideration and conservation, and recognition of the rights of workers and local communities (Hai, 2007). There are eight Principles and Criteria (P & C) for Sustainable Palm oil Production supported by 39 criteria which registered in Table 2.

Table 2: Principles and Criteria for Sustainable Palm oil

Principle	Criteria
Principle 1	Commitment to transparency
Principle 2	Compliance with applicable laws and regulations
Principle 3	Commitment to long-term economic and financial viability
Principle 4	Use of appropriate best practices by growers and millers
Principle 5	Environmental responsibility and conversion of natural resources and biodiversity
Principle 6:	Responsible consideration of employees and of individuals and communities affected by grower and mills
Principle 7	Responsible development of new plantings
Principle 8	Commitment to continuous improvement in key areas of activity

Source: Hai, Global Oils & Fats Business Magazine, 2007

According to RSPO Principles and Criteria, Malaysia and Indonesia as the main producer of palm oil has been adopted the sustainability practice in palm oil industry. Malaysia sustainability practices are Good Agricultural Practice (GAP) (Estates and Smallholders), Integrated Pest Management (IPM) and Supply Chain Security (Mohd Basri, 2009). Beside that, in term of product safety, quality and competitiveness and sustainability of palm oil in global market, Malaysia has developed Code of Practice for Oil Palm Supply Chain (CoPs) in 2007. This Code was based on Roundtable Sustainability of Palm Oil (RSPO) and Euro Good Agriculture Practice (Euro GAP)

(Mohd Basri, Berita Sawit: 9.1.2008). This code consists of five Codes of Practices (CoPs) such as Good Agricultural Practice (GAP) for oil palm estates and smallholders, Good Milling Practice (GMP) for palm oil kernel, Good Crushing Practice (GCP) for palm oil refineries, Good Practice for the handling, transport and storage of product from the oil palm (MPOB and APOC, 2010). While in 2009, Sustainable Palm Oil Cluster (SPOC) was established that aim to involve participation of smallholders in sustainable production and to increase their income.

While in Indonesia World Wide Fund for Nature (WWF) Indonesia has played an important role to implement RSPO in Indonesia. WWF Indonesia as a founding member of the Roundtable, has worked since 2002 with a wide range of stakeholders to ensure that the RSPO standards contain "robust" social and environmental criteria, including a ban on the conversion of areas with high conservation value into oil palm plantations. WWF works to ensure that oil palm expansion does not come at the expense of tropical forests by promoting its expansion onto degraded or idle lands (Jakarta, April 7, 2009).

Beside that, WWF also play an important role to develop guidance for the smallholder who representing 40 percent of Indonesia's palm oil grower. Furthermore, the organization held the training collaboration with Indonesia Smallholders Working Group, the Department of Agriculture, the RSPO Indonesia Liaison Office (RILO), Sawit Watch and various certification bodies. RILO was establish in December 2006 to promote the overall objective of the RSPO in Indonesia and to support the RSPO Secretariat in Kuala Lumpur (Jakarta, April 7, 2009). All these approach was to educate trainer on the threats of oil palm plantation to the region's forests and local species and to motivate smallholders to comply with the RSPO Principles and Criteria (P & C) as registered in Table 2.

In addition, as a part of Good Agricultural Practice (GAP) Indonesia has also been advocating Integrated Pest Management (IPM) practice and promoted oil palm-livestock integrated farming. Livestock farming approach is used to reduce consumption of herbicides. Thus, by using less herbicide in palm oil industry, this country could produce safeness of palm oil output and endanger surrounding environment (www.rspo.org/files/pdf/RT2/Proceedings/.../Minister%20Speech.pdf). Furthermore, under increasing pressure from environmentalists, Indonesia has plans to introduce "green certificates" for palm oil producers who meet sustainable standards (Reuter, April 20, 2010).

Beside the implementation of RSPO principle and criteria, as main producer and exporter of world palm oil, Malaysia and Indonesia have agreed to co-operate and jointly to tackle issues related to palm oil, particularly those raised by non-governmental organizations (NGOs). According to Malaysian Palm Oil Association (MPOA) chief executive officer, both countries must work together in overcoming the challenges facing by the industry at the RSPO, in negotiations on trade regulations with the European Union and United States (USA) and the international Panel on Climate Change (Ahmad Fuad, Bernama March 6, 2010).

4.0 Conclusion

Palm oil is the most significant vegetable oils traded in the world market place. The versatility and benefited of palm oil boosted the demand of palm oil which available in more than 100 countries in the world. Malaysia and Indonesia is a major producer and exporter of palm oil. However the dominance's of Malaysia in term of area cultivation and production was take over by Indonesia in 1997 and 2006, respectively. Meanwhile, Malaysia still remained as the main exporter, but the market share of total export and in selected market like India, European Union (EU) and Pakistan was declining significantly. As main producer and exporter, Malaysia and Indonesia collaboration is important to tackle the main issue of price stabilization and sustainability and environmental to strengthening and harmonizing the palm oil in market place.

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